UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER
WERNER, DAVID N

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2010*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-12,20 and 21* is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *9-12,20 and 21* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *24 December 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☐ All   b)☐ Some * c)☐ None of:
          1.☐ Certified copies of the priority documents have been received.
          2.☐ Certified copies of the priority documents have been received in Application No. _____.
          3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   This Office action for U.S. Patent Application No. 10/765,813 is responsive to
communications filed 11 June 2010, in reply to the Non-Final Rejection of 9 March
2010. Claims 9–12, 20, and 21 are pending.

2.   In the previous Office action, Claim 9–12 and 20–22 were rejected under 35
U.S.C. § 103(a) as obvious over U.S. Patent Application Publication No. 2002/0080870
A1 (*Piazza*) in view of U.S. Patent Application Publication No. 2002/0174305 A1 (*Vartti*).
Claim 22 was objected to as redundant with parent claim 9.

Response to Arguments

3.   Applicant's arguments have been fully considered but they are unpersuasive.
Applicant alleges that the *Piazza* reference does not disclose the claimed local buffer
that stores "a macroblock row". However, the storage of "a macroblock row", or a slice,
as it is known in the art, is non-patentable over the prior art at least since first, a slice
buffer was known in the art at the time of the invention, and second, even if *Piazza*
recites storing one macroblock, rather than one portion, of data, the mere change in
size of an otherwise identical buffer to accommodate a macroblock row of data rather
than a single macroblock is not considered inventive.

        U.S. Patent No. 5,414,468 A (*Lee*) is added to the record as an example of a
prior art decoder containing a slice buffer. *Lee* teaches a video decoder, illustrated in
figure 1. *Lee*, col. 2: lines 35–37. Included in the decoder is buffering circuit 400, which

includes macroblock buffer 430, as in *Piazza*, and a slice buffer 420. *Lee*, col. 3: line 66

– col. 4: line 2. Other examples, listed below and cited in the enclosed Notice of

References Cited (Form 892), are also added to the record.

However, even if *arguendo* the claimed macroblock row, or slice, buffer was

novel over the prior art at the time of the present invention, it still would be considered

obvious and non-patentable in view of conventional buffers of other sizes such as the

one in *Piazza*. Courts have consistently held that a mere change in size of an existing

device without any change in functionality is insufficient to establish patentability.

Gardner v. TEC Sys., Inc., 725 F.2d 1338, 1345–46 (Fed. Cir. 1984) (change in

dimensions of prior art "air bar" component of ink drying device not patentable), *In re

Rinehart*, 531 F.2d 1048, 1053 (C.C. P.A. 1976) (holding that "mere scaling up of a prior

art process capable of being scaled up...would not establish patentability in a claim to

an old process so scaled"), *In re Rose*, 220 F.2d 459, 463 (C.C.P.A. 1955) (increased

size of prior art package for transport on lift truck not "patentably significant since it at

most relates to the size of the article under consideration which is not ordinarily a matter

of invention"), *In re Yount*, 171 F.2d 317–18 (C.C.P.A. 1949) ("mere size is not

ordinarily a matter of invention"), *In re Kirke*, 40 F.2d 765, 767 (C.C.P.A. 1930) ("as a

general proposition, there is nothing patentable in making a machine or apparatus

larger or smaller, if it produces the same result in the same manner") (*quoting Edison v.

Alsen's Am. Portland Cement Works*, 208 F.20, 22 (S.D.N.Y. 1913)). In this case, the

scaling up of the macroblock-size buffer in *Piazza* to store a row of macroblocks,

considering that Applicant admits in paragraph 0047 of the specification that the buffer

can be further scaled up "to access multiple rows in parallel", similar to how the

applicant in *Yount* admitted that the process of manufacturing the claimed large bags

was "also applicable to the fabrication of relatively smaller bags", is not considered

inventive. *Yount* at 318. The cited advantage of reducing the amount of time and

power the processor uses to fetch data from the buffer, without any change in the

functionality of the buffer (it still performs the same task of storing data), does not

change the result or manner of the buffer.

For at least these reasons, the claim rejections are maintained.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 9–12 and 20–21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over U.S. Patent Application Publication No. 2002/0080870 A1 (*Piazza*) in

view of U.S. Patent Application Publication 2002/0174305 A1 (*Vartti*).

6.   *Piazza* teaches a video decoder with motion compensation. Regarding Claim 9,

Figure 8 illustrates a block diagram of the decoder. Included is memory 830 storing

compressed macroblock 880 (paragraph 0065). The compressed macroblock is then

loaded into cache memory 810 (paragraph 0066). Cache memory 810 is the claimed

"local buffer". Processor 800 then processes the data in cache memory 810 and

performs decoding operations such as inverse DCT (paragraph 0067). Then, Processor

800 is the claimed "decompression engine". However, the present invention differs

from *Piazza* in two factors. First, the present invention is directed to a processor having

a local buffer that stores "a macroblock row" whereas cache memory 810 in *Piazza* only

appears to store a single macroblock. Second, the present invention discloses an

extractor for direct memory access engine control of the local buffer, giving instructions

that the compressed data stored in the buffer may be overwritten by more compressed

video data, not disclosed in *Piazza*.

First, regarding the size of the buffer as storing "a macroblock row", it is

respectfully submitted that it would have been an obvious matter of design choice to

modify the buffer of *Piazza* to store a macroblock row rather than a single macroblock,

since such a modification would have involved a mere change in the size of a

component. A change in size is generally recognized as being within the level of

ordinary skill in the art. *In re Rose*, 220 F.2d 459, 463 (C.C.P.A. 1955).

Second, regarding the claimed extractor, it is respectfully submitted that *Vartti*

discloses this limitation, and it would have been obvious to one having ordinary skill in

the art at the time of the present invention to modify the *Piazza* decoder to include the

claimed extractor taught by *Vartti*.

Vartti teaches a system for controlling cache memory. Regarding Claim 9, figure

3 illustrates a flowchart of the memory locking process. At step 300, a processor

requests a "storage lock" on a cache line. *Vartti*, paragraph 0049. The lock grants the

processor the exclusive access to the cache line so that no other processor or memory

unit may access it. *Id.* at 0005. This exclusivity includes a right to exclude other processors or memory units from overwriting the line. *Id.* at 0045, 0037. The ownership may additionally be a read-only type, in which the owner may read the line, but no other requester may access the line at all. *Id.* at 0043. As applied to the present invention, when the decompression engine locks the buffer that stores the "portion", the buffer cannot be overwritten by another component of the decoder.

At step 302 of *Vartti*, the system determines if the requested cache line is owned by another requester or if it is clear for the current requester. *Vartti* at paragraph 0049. If the cache line is clear or if the current requester already owns the line, the request from step 300 is granted at step 306. *Id.* at paragraph 0050. The processor is then free to use the data in the cache subject to the conditions of the ownership, such as read-only. *Id.* at 0051. As applied to the present invention, the processing required during ownership is decompressing the data portion stored in the buffer. After the processor is finished using the data, it issues a "release lock notification" at step 308. *Id.* This release lock notification is the claimed "indicator" allowing further processing of the cache data, such as overwriting. Figure 1 illustrates the computing system of *Vartti* as a whole as a massively parallel or distributed environment, and figure 2 illustrates an example of one processing module. *Id.* at 0024. Included in the processing module is an instruction processor 202 which performs the actual processing operations, cache 206, and storage controller 204 which interfaces between the processor and the cache. *Id.* at 0025. Then, the cache 206 is the claimed "local buffer", processor 202 is the claimed "decompression engine", and controller 204 is the claimed "extractor".

Piazza discloses the claimed invention except for determining when it is "safe" to overwrite a buffer memory. *Vartti* teaches that it was known to "lock" a cache memory to allow one processor to read its contents as needed and no other component of a system to access it during the time the memory is locked. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the present invention to modify the cache memory of *Piazza* to be lockable when the processor is decoding the data stored within, as in the cache memory of *Vartti*, since *Vartti* states in paragraph 0004 that such a modification would prevent processing errors from inconsistent or incoherent data that changes during processing.

Regarding Claim 10, in *Piazza*, a macroblock command to data stored in cache memory 810 (paragraph 0087) is the claimed command.

Regarding Claim 11, in *Piazza*, assuming only one macroblock 880 is in cache memory 810 at once, a second macroblock 880 after a first macroblock 880 is processed and stored in memory buffer 820 is the claimed "another portion of the compressed video data".

Regarding Claim 12, as previously mentioned, figure 1 of *Vartti* illustrates a parallel embodiment with multiple caches and processors.

Regarding Independent Claim 20, as discussed above, in *Piazza*, processor 800 is the claimed video decoder and cache 810, as scaled up to hold a slice or macroblock

row, is the claimed local buffer. In *Vartti*, interface 204 between the processor and the cache incorporates the claimed extractor and direct memory access engine.

Regarding Claim 21, *Piazza* is expressly described as a system "for motion compensation of digital video data". *Piazza*, abstract.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,278,646 A (*Civanlar*), U.S. Patent No. 5,414,468 A (*H.S. Lee*), U.S. Patent No. 5,485,216 A (*D.H. Lee*), U.S. Patent No. 5,539,467 A (*Song*), and U.S. Patent No. 5,946,037 A (*Ahnn*) all disclose video decoders each containing a "slice buffer".

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Werner whose telephone number is (571)272-9662. The examiner can normally be reached on Monday-Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. N. W./
Examiner, Art Unit 2621

/Mehrdad Dastouri/
Supervisory Patent Examiner, Art Unit 2621